

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

2375 Northside Drive, Suite 100, San Diego, CA 92108
619-516-1990 • Fax 619-516-1994
<http://www.waterboards.ca.gov/sandiego/>

**TENTATIVE ORDER NO. R9-2019-0003
NPDES NO. CA0109223**

**WASTE DISCHARGE REQUIREMENTS
FOR THE POSEIDON RESOURCES (CHANNELSIDE) LP
CLAUDE "BUD" LEWIS CARLSBAD DESALINATION PLANT
DISCHARGE TO THE PACIFIC OCEAN**

The following Discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Table 1. Discharger Information

Discharger:	Poseidon Resources (Channelside) LP
Facility:	Claude "Bud" Lewis Carlsbad Desalination Plant
Facility Address:	4590 Carlsbad Boulevard
	Carlsbad, CA 92008
	San Diego County

Table 2. Discharge Location

Discharge Point No.	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Reverse osmosis concentrate, filter backwash, potable water, and bypassed seawater	33° 8' 17" N	117° 20' 25" W	Pacific Ocean

Table 3. Administrative Information

This Order was adopted on:	March 13, 2019
This Order shall become effective on:	May 1, 2019
This Order shall expire on:	April 30, 2024
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations (CCR), and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	180 days prior to the Order expiration date
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) have classified this discharge as follows:	Major

I, David W. Gibson, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the San Diego Water Board on March 13, 2019.

TENTATIVE

David W. Gibson, Executive Officer

Contents

I.	Facility Information	3
II.	Findings	3
III.	Discharge Prohibitions	5
IV.	Effluent Limitations, Intake Specifications, and Discharge Specifications	6
A.	Effluent Limitations	6
B.	Performance Goals	7
C.	Intake Specifications	12
D.	Discharge Specifications	12
E.	Land Discharge Specifications – Not Applicable	13
F.	Recycling Specifications – Not Applicable	13
V.	Receiving Water Limitations	13
A.	Surface Water Limitations	13
B.	Groundwater Limitations – Not Applicable	15
VI.	Provisions	15
A.	Standard Provisions	15
B.	MRP Requirements	16
C.	Special Provisions	16
1.	Reopener Provisions	16
2.	Special Studies, Technical Reports, and Additional Monitoring Requirements	17
3.	Best Management Practices and Pollution Prevention	20
4.	Construction, Operation and Maintenance Specifications – Not Applicable	22
5.	Special Provisions for Publicly Owned Treatment Works – Not Applicable	22
6.	Other Special Provisions – Not Applicable	22
7.	Compliance Schedule for Construction of the New Intake Structure	22
8.	Certification Report for New Intake Structure	23
9.	Certification Report for New Intake Pumps	24
VII.	Compliance Determination	25

Tables

Table 1.	Discharger Information	1
Table 2.	Discharge Location	1
Table 3.	Administrative Information	1
Table 4.	Permitted Flows	5
Table 5.	Effluent Limitations	6
Table 6.	Performance Goals	7
Table 7.	Compliance Schedule for Construction of the New Intake Structure	22

Attachments

Attachment A – Abbreviations and Glossary	A-1
Attachment B – Maps	B-1
Attachment C – Flow Schematics	C-1
Attachment D – Standard Provisions	D-1
Attachment E – Monitoring and Reporting Program	E-1
Attachment F – Fact Sheet	F-1
Attachment G – Ocean Plan and Basin Plan Prohibitions	G-1
Attachments H.1 & H.2 – Ocean Plan Decision Matrix and Water Code 13142.5(b) Evaluation	H-1

I. FACILITY INFORMATION

The Claude “Bud” Lewis Carlsbad Desalination Plant (Facility) is a seawater desalination plant located on the shores of Agua Hedionda Lagoon in Carlsbad, CA. The Facility currently produces up to 54 million gallons per day (MGD) of potable drinking water for the San Diego County Water Authority (SDCWA). Poseidon Resources (Channelside) LP (Poseidon or Discharger) is the current owner and operator of the Facility. However, the SDCWA has the option to purchase the Facility from Poseidon starting December 23, 2025.

The Facility was formerly co-located with the Encina Power Station, owned and operated by Cabrillo Power I LLC. The discharge from the Encina Power Station to the Pacific Ocean is regulated separately under Order No. R9-2006-0043, NPDES No. CA0001350. The Encina Power Station terminated power generation operations on December 11, 2018. At that time, the Facility initiated interim stand-alone operations utilizing the existing intake structure, screens, and pumps to provide the volume of seawater needed to produce potable water, and to provide dilution water for the reverse osmosis concentrate and filter backwash from the Facility prior to being discharged to the Pacific Ocean. Effluent from the Facility is monitored at Monitoring Location M-001 and the commingled effluent from the Facility and the Encina Power Station is currently monitored at Monitoring Location M-002. Future plans include constructing and operating new intake pumps and a new intake structure.

General information describing the Facility is summarized in Table 1. More detailed information, including information regarding the Discharger’s permit application, is contained in sections I and II of the Fact Sheet (Attachment F).

II. FINDINGS

The San Diego Water Board finds:

- A. Legal Authorities.** This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code or CWC) commencing with section 13260. This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implements regulations adopted by the United States Environmental Protection Agency (U.S. EPA) and chapter 5.5, division 7 of the Water Code commencing with section 13370. This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the U.S. at the discharge location described in Table 2 subject to the WDRs in this Order. This Order also serves as the Water Code section 13142.5(b) determination for the Facility.
- B. Background and Rationale for Requirements.** The San Diego Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E, G, and H are also incorporated into this Order.
- C. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections II.D, II.E, IV.C, VI.A.2, VI.A.3, VI.A.4, and VI.C.2-8 are included to implement State law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- D. Water Code Section 13142.5(b) Determination.** Water Code section 13142.5(b) requires that for each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating, or industrial processing, best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all

forms of marine life. Chapter III.M of the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) provides the implementation provisions for desalination facilities to comply with Water Code section 13142.5(b). This Order Implements the Water Code section 13142.5(b) determination described in Attachments H.1 and H.2 (which may also be collectively referred to as Attachment H) of this Order for Facility stand-alone¹ operations in accordance with Ocean Plan requirements. In making this determination the San Diego Water Board evaluated a range of alternatives proposed by the Discharger for the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life and then determined the best combination of feasible alternatives to minimize intake and mortality of all forms of marine life. Any potential future expansion, including any design change or operational change to the Facility that could increase the intake or mortality of all forms of marine life beyond that which is approved under this Order will require a Water Code 13142.5(b) determination in accordance with the Ocean Plan requirements.

- E. **Compliance Schedule.** Pursuant to Ocean Plan chapter III.M.2.a.(5)(b), the San Diego Water Board may allow the Discharger up to five years to make modifications to the Facility required by a new Water Code section 13142.5(b) determination, including but not limited to a new source water intake structure. The San Diego Water Board finds that a five-year schedule to complete the intake structure modifications no later than December 11, 2023 is in the public interest so that the Facility can continue to provide drinking water to the region without interruption. This compliance schedule is also reasonably required for modification of the Facility to comply with the determination and to allow interim intake and discharge operations during stand-alone operations to continue until the new intake structure and configuration is constructed and operational. Additional information regarding the compliance schedule is in section VI.C.7 of the Order, section VI.G of the Fact Sheet, and in Attachment H to the Order.
- F. **California Environmental Quality Act (CEQA).** The action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with section 13389 of the Water Code. The Water Code section 13142.5(b) determination set forth in Attachments H-1 and H-2 to this Order is issued under state law authority only and is a discretionary approval subject to compliance with CEQA. In August 2016, the SDCWA certified the *Final Supplement to the Precise Development Plan and Desalination Plant Project Final Environmental Impact Report (EIR 03-05; State Clearinghouse No. 2004041081)* (Final EIR). In January 2019, the SDCWA approved the *Sixth Addendum to the Final EIR*. The San Diego Water Board independently considered the environmental effects of the project as described in the 2006 EIR, the 2016 Supplemental EIR, and addendums. Details of CEQA compliance are set forth in the Fact Sheet (Attachment F).
- G. **Executive Officer Delegation of Authority.** The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to Water Code section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under Water Code section 13223 or this Order explicitly states otherwise.
- H. **Notification of Interested Parties.** The San Diego Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and of its intent to make a Water Code section 13142.5(b) determination and has provided them with an opportunity to submit their written comments and recommendations. The San Diego Water

¹ The term stand-alone operations is defined in Attachment A of this Order.

Board also provided an opportunity for the Discharger and interested agencies and persons to submit oral comments and recommendations at a public hearing. Details of the notification are provided in the Fact Sheet (Attachment F).

- I. **Consideration of Public Comment.** The San Diego Water Board, in a public meeting, heard and considered all comments pertaining to the discharge and the Water Code section 13142.5(b) determination. Details of the public hearing are provided in the Fact Sheet (Attachment F).

THEREFORE, IT IS HEREBY ORDERED, that this Order supersedes Order No. R9-2006-0065 except for enforcement purposes, and to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. If any part of this Order is subject to a temporary stay of enforcement, unless otherwise specified in the order granting stay, the Discharger shall comply with the analogous portions of the previous Order (Order No R9-2006-0065, as amended by Order No. R9-2009-0038). This action in no way prevents the San Diego Water Board from taking enforcement action for past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

- A. The discharge of waste from the Facility to a location other than Discharge Point No. 001, unless specifically regulated by this Order or separate WDRs, is prohibited.
- B. The Discharger must comply with Discharge Prohibitions contained in the Ocean Plan. All such prohibitions are incorporated into this Order as if fully set forth herein and summarized in Attachment G, *Ocean Plan and Basin Plan Prohibitions*, as a condition of this Order.
- C. The Discharger must comply with applicable Waste Discharge Prohibitions contained in chapter 4 of the *Water Quality Control Plan for the San Diego Basin* (Basin Plan). All such prohibitions are incorporated into this Order as if fully set forth herein and summarized in Attachment G, *Ocean Plan and Basin Plan Prohibitions*, as a condition of this Order.
- D. The discharge of permitted wastes greater than the following flow rates in Table 4 is prohibited.

Table 4. Permitted Discharge Flows¹ at Monitoring Location M-001

Wastewater	Maximum Daily Flowrate (MGD)
Media Filtration Backwash	7
Reverse Osmosis Concentrate	60

¹ Startup maintenance flows, product water, and off-spec water may be temporarily discharged to the Pacific Ocean during initial plant start-up, during or after plant maintenance, or at other times when the Facility is otherwise not delivering potable water to the regional water system. Temporarily discharging such water to the Pacific Ocean does not constitute a "bypass" as defined in Attachment A, and Attachment D, Standard Provision I.G.1.a of this Order. All limits and requirements, including monitoring, specified in this Order remain applicable during these temporary discharges.

IV. EFFLUENT LIMITATIONS, INTAKE SPECIFICATIONS, AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations

- The Discharger shall maintain compliance with the following effluent limitations in Table 5 with compliance measured at either Monitoring Location M-001 or M-002, as described in the Monitoring and Reporting Program (MRP, Attachment E). Compliance with these effluent limitations shall be determined separately for when the Facility is discharging brine and when the Facility is not discharging brine. Monitoring shall be reported for these periods separately consistent with the effluent monitoring provisions in section III.B of the MRP (Attachment E).

Table 5. Effluent Limitations¹

Parameter	Monitoring Location	Units ²	Effluent Limitations						
			Average Monthly	Average Weekly	Average Daily	Average Hourly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids (TSS)	M-001	mg/L	60	--	--	--	--	--	--
		lbs/day	119,095	--	--	--	--	--	--
pH	M-001	standard units	--	--	--	--	--	6.0	9.0
Oil and Grease	M-001	mg/L	25	40	--	--	--	--	75
		lbs/day	49,623	79,397	--	--	--	--	148,869
Settleable Solids	M-001	ml/L	1.0	1.5	--	--	--	--	3.0
Turbidity	M-001	NTU	75	100	--	--	--	--	225
Salinity	M-002	ppt ³	--	--	42.0	--	--	--	--
Chronic Toxicity ⁴	M-002	Pass / Fail	--	--	--	--	Pass ⁶	--	--
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS¹									
TCDD equivalents	M-001	µg/L	8.9E-08 ⁵	--	--	--	--	--	--
		lbs/day	1.77E-07						

Footnotes to this table are listed on the following page.

- ¹ See Attachment A for definitions, abbreviations, and a glossary of common terms used in this Order.
- ² The mass emission rate limitation (MER), in lbs/day, was calculated based on the following equation:
MER (lbs/day) = 8.34 x Q x C, where Q is the flow rate of 238 MGD and C is the concentration in mg/L. A discharge flow-rate of 238 MGD is an operational constraint of the Facility modeled with the highest concentration of brine discharged, 60 MGD, with the minimum amount of dilution water, 178 MGD, that is necessary to meet the salinity effluent limitation.
- ³ "ppt" is parts per thousand.
- ⁴ As specified in section III.C of the MRP (Attachment E).
- ⁵ Scientific "E" notation is used to express the effluent limitations TCDD equivalents. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 0.01 or 0.061, 6.1E+02 represents 6.1 x 10² or 610, and 6.1E+00 represents 6.1 x 10⁰ or 6.1.
- ⁶ As recommended in the USEPA's *Technical Support Document for Water Quality-based Toxics Control*, section 5.2.3, the maximum daily effluent limitation for chronic toxicity should be interpreted as signifying the maximum test result for the month.

B. Performance Goals

Parameters that do not have reasonable potential to cause or contribute to an exceedance of water quality objectives, or for which reasonable potential to cause or contribute to an exceedance of water quality objectives cannot be determined, are assigned performance goals. Performance goal parameters shall be monitored at Monitoring Location M-001. The performance goals in Table 6 below are not water quality-based effluent limitations (WQBELs) and are not enforceable.

Table 6. Performance Goals¹

Parameter	Unit ³	Performance Goals ²			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE					
Arsenic, Total Recoverable	µg/L	1.2E+02	6.7E+02	1.8E+03	--
	lbs/day	2.33E+02	1.32E+03	3.50E+03	--
Cadmium, Total Recoverable	µg/L	2.28E+01	9.13E+01	2.28E+02	--
	lbs/day	4.53E+01	1.81E+02	4.53E+02	--
Chromium VI ⁴	µg/L	4.57E+01	1.83E+02	4.57E+02	--
	lbs/day	9.06E+01	3.63E+02	9.06E+02	--
Copper, Total Recoverable	µg/L	2.48E+01	2.30E+02	6.41E+02	--
	lbs/day	4.93E+01	4.57E+02	1.27E+03	--
Lead, Total Recoverable	µg/L	4.57E+01	1.83E+02	4.57E+02	--
	lbs/day	9.06E+01	3.63E+02	9.06E+02	--
Mercury, Total Recoverable	µg/L	9.02E-01	3.64E+00	9.12E+00	--
	lbs/day	1.79E+00	7.23E+00	1.81E+01	--
Nickel, Total Recoverable	µg/L	1.14E+02	4.57E+02	1.14E+03	--
	lbs/day	2.27E+02	9.06E+02	2.27E+03	--
Selenium, Total Recoverable	µg/L	3.42E+02	1.37E+03	3.42E+03	--
	lbs/day	6.80E+02	2.72E+03	6.80E+03	--
Silver, Total Recoverable	µg/L	1.25E+01	6.04E+01	1.56E+02	--
	lbs/day	2.48E+01	1.20E+02	3.10E+02	--

Parameter	Unit ³	Performance Goals ²			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
Zinc, Total Recoverable	µg/L	2.82E+02	1.65E+03	4.39E+03	--
	lbs/day	5.60E+02	3.28E+03	8.72E+03	--
Cyanide, Total Recoverable	µg/L	2.28E+01	9.13E+01	2.28E+02	--
	lbs/day	4.53E+01	1.81E+02	4.53E+02	--
Total Chlorine Residual	µg/L	4.57E+01	1.83E+02	1.37E+03	--
	lbs/day	9.06E+01	3.63E+02	2.72E+03	--
Ammonia (expressed as nitrogen)	µg/L	1.37E+04	5.48E+04	1.37E+05	--
	lbs/day	2.72E+04	1.09E+05	2.72E+05	--
Phenolic Compounds (non-chlorinated)	µg/L	6.85E+02	2.74E+03	6.85E+03	--
	lbs/day	1.36E+03	5.44E+03	1.36E+04	--
Chlorinated Phenolics	µg/L	2.28E+01	9.13E+01	2.28E+02	--
	lbs/day	4.53E+01	1.81E+02	4.53E+02	--
Endosulfan	µg/L	2.05E-01	4.11E-01	6.16E-01	--
	lbs/day	4.08E-01	8.16E-01	1.22E+00	--
Endrin	µg/L	4.57E-02	9.13E-02	1.37E-01	--
	lbs/day	9.06E-02	1.81E-01	2.72E-01	--
HCH	µg/L	9.13E-02	1.83E-01	2.74E-01	--
	lbs/day	1.81E-01	3.63E-01	5.44E-01	--
Radioactivity	pCi/L	Not to exceed limits specified in Title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS					
Acrolein	µg/L	--	--	--	5.02E+03
	lbs/day	--	--	--	9.97E+03
Antimony	µg/L	--	--	--	2.74E+04
	lbs/day	--	--	--	5.44E+04
Bis(2-chloroethoxy) Methane	µg/L	--	--	--	1.00E+02
	lbs/day	--	--	--	1.99E+02
Bis(2-chloroisopropyl) Ether	µg/L	--	--	--	2.74E+04
	lbs/day	--	--	--	5.44E+04
Chlorobenzene	µg/L	--	--	--	1.30E+04
	lbs/day	--	--	--	2.58E+04
Chromium (III)	µg/L	--	--	--	4.34E+06
	lbs/day	--	--	--	8.61E+06
Di-n-butyl Phthalate	µg/L	--	--	--	7.99E+04
	lbs/day	--	--	--	1.59E+05

Parameter	Unit ³	Performance Goals ²			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
Dichlorobenzenes	µg/L	--	--	--	1.16E+05
	lbs/day	--	--	--	2.31E+05
Diethyl Phthalate	µg/L	--	--	--	7.53E+05
	lbs/day	--	--	--	1.50E+06
Dimethyl Phthalate	µg/L	--	--	--	1.87E+07
	lbs/day	--	--	--	3.72E+07
4,6-dinitro-2-methylphenol	µg/L	--	--	--	5.02E+03
	lbs/day	--	--	--	9.97E+03
2,4-dinitrophenol	µg/L	--	--	--	9.13E+01
	lbs/day	--	--	--	1.81E+02
Ethylbenzene	µg/L	--	--	--	9.36E+04
	lbs/day	--	--	--	1.86E+05
Fluoranthene	µg/L	--	--	--	3.42E+02
	lbs/day	--	--	--	6.80E+02
Hexachlorocyclopentadiene	µg/L	--	--	--	1.32E+03
	lbs/day	--	--	--	2.63E+03
Nitrobenzene	µg/L	--	--	--	1.12E+02
	lbs/day	--	--	--	2.22E+02
Thallium, Total Recoverable	µg/L	--	--	--	4.57E+01
	lbs/day	--	--	--	9.06E+01
Toluene	µg/L	--	--	--	1.94E+06
	lbs/day	--	--	--	3.85E+06
Tributyltin	µg/L	--	--	--	3.20E-02
	lbs/day	--	--	--	6.34E-02
1,1,1-trichloroethane	µg/L	--	--	--	1.23E+07
	lbs/day	--	--	--	2.45E+07
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS					
Acrylonitrile	µg/L	--	--	--	2.28E+00
	lbs/day	--	--	--	4.53E+00
Aldrin	µg/L	--	--	--	5.02E-04
	lbs/day	--	--	--	9.97E-04
Benzene	µg/L	--	--	--	1.35E+02
	lbs/day	--	--	--	2.67E+02
Benzidine	µg/L	--	--	--	1.58E-03
	lbs/day	--	--	--	3.13E-03
Beryllium	µg/L	--	--	--	7.53E-01
	lbs/day	--	--	--	1.50E+00

Parameter	Unit ³	Performance Goals ²			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
Bis(2-chloroethyl) Ether	µg/L	--	--	--	1.03E+00
	lbs/day	--	--	--	2.04E+00
Bis(2-ethylhexyl)phthalate	µg/L	--	--	--	7.99E+01
	lbs/day	--	--	--	1.59E+02
Carbon Tetrachloride	µg/L	--	--	--	2.05E+01
	lbs/day	--	--	--	4.08E+01
Chlordane	µg/L	--	--	--	5.25E-04
	lbs/day	--	--	--	1.04E-03
Chlorodibromomethane	µg/L	--	--	--	1.96E+02
	lbs/day	--	--	--	3.90E+02
Chloroform	µg/L	--	--	--	2.97E+03
	lbs/day	--	--	--	5.89E+03
DDT	µg/L	--	--	--	3.88E-03
	lbs/day	--	--	--	7.70E-03
1,4-dichlorobenzene	µg/L	--	--	--	4.11E+02
	lbs/day	--	--	--	8.16E+02
3,3'-dichlorobenzidine	µg/L	--	--	--	1.85E-01
	lbs/day	--	--	--	3.67E-01
1,2-dichloroethane	µg/L	--	--	--	6.39E+02
	lbs/day	--	--	--	1.27E+03
1,1-dichloroethylene	µg/L	--	--	--	2.05E+01
	lbs/day	--	--	--	4.08E+01
Dichlorobromomethane	µg/L	--	--	--	1.42E+02
	lbs/day	--	--	--	2.81E+02
Dichloromethane	µg/L	--	--	--	1.03E+04
	lbs/day	--	--	--	2.04E+04
1,3-dichloropropene	µg/L	--	--	--	2.03E+02
	lbs/day	--	--	--	4.03E+02
Dieldrin	µg/L	--	--	--	9.13E-04
	lbs/day	--	--	--	1.81E-03
2,4-dinitrotoluene	µg/L	--	--	--	5.94E+01
	lbs/day	--	--	--	1.18E+02
1,2-diphenylhydrazine	µg/L	--	--	--	3.65E+00
	lbs/day	--	--	--	7.25E+00
Halomethanes	µg/L	--	--	--	2.97E+03
	lbs/day	--	--	--	5.89E+03
Heptachlor	µg/L	--	--	--	1.14E-03
	lbs/day	--	--	--	2.27E-03

Parameter	Unit ³	Performance Goals ²			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
Heptachlor Epoxide	µg/L	--	--	--	4.57E-04
	lbs/day	--	--	--	9.06E-04
Hexachlorobenzene	µg/L	--	--	--	4.79E-03
	lbs/day	--	--	--	9.52E-03
Hexachlorobutadiene	µg/L	--	--	--	3.20E+02
	lbs/day	--	--	--	6.34E+02
Hexachloroethane	µg/L	--	--	--	5.71E+01
	lbs/day	--	--	--	1.13E+02
Isophorone	µg/L	--	--	--	1.67E+04
	lbs/day	--	--	--	3.31E+04
N-nitrosodimethylamine	µg/L	--	--	--	1.67E+02
	lbs/day	--	--	--	3.31E+02
N-nitrosodi-N-propylamine	µg/L	--	--	--	8.68E+00
	lbs/day	--	--	--	1.72E+01
N-nitrosodiphenylamine	µg/L	--	--	--	5.71E+01
	lbs/day	--	--	--	1.13E+02
PAHs	µg/L	--	--	--	2.01E-01
	lbs/day	--	--	--	3.99E-01
PCBs	µg/L	--	--	--	4.34E-04
	lbs/day	--	--	--	8.61E-04
1,1,2,2-tetrachloroethane	µg/L	--	--	--	5.25E+01
	lbs/day	--	--	--	1.04E+02
Tetrachloroethylene	µg/L	--	--	--	4.57E+01
	lbs/day	--	--	--	9.06E+01
Toxaphene	µg/L	--	--	--	4.79E-03
	lbs/day	--	--	--	9.52E-03
Trichloroethylene	µg/L	--	--	--	6.16E+02
	lbs/day	--	--	--	1.22E+03
1,1,2-trichloroethane	µg/L	--	--	--	2.15E+02
	lbs/day	--	--	--	4.26E+02
2,4,6-trichlorophenol	µg/L	--	--	--	6.62E+00
	lbs/day	--	--	--	1.31E+01
Vinyl Chloride	µg/L	--	--	--	8.22E+02
	lbs/day	--	--	--	1.63E+03

¹ See Attachment A for definitions, abbreviations, and a glossary of common terms used in this Order.

² Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10⁻² or 0.061, 6.1E+02 represents 6.1 x 10² or 610, and 6.1E+00 represents 6.1 x 10⁰ or 6.1.

³ The MER, in lbs/day, is calculated based on the following equation:

MER (lbs/day) = $8.34 \times Q \times C$, where Q is a flow rate of 238 MGD, and C is the concentration in mg/L. A discharge flow-rate of 238 MGD is an operational constraint of the Facility modeled with the highest concentration of brine discharged, 60 MGD, with the minimum amount of dilution water, 178 MGD, that is necessary to meet the salinity effluent limitation.

- ⁴ The Discharger may, at their option, apply this performance goal as a total chromium performance goal.

C. Intake Specifications

The intake of seawater from Agua Hedionda Lagoon shall comply with these specifications following completion of the new intake structure in accordance with the time schedule described in section VI.C.7 of this Order and Attachment H of the Order:

1. The new intake structure shall be completely constructed and operable in accordance with the requirements of this Order;
2. The intake of seawater must not exceed 330 MGD with the existing intake pumps and 299 MGD with the new intake pumps;
3. Surface water intakes must be screened at the onset of the intake of seawater. Screens must be functional while the Facility is withdrawing seawater;
4. To reduce entrainment, all surface water intakes must be screened with a 1.0 mm (0.04 in.) or smaller slot size screen when the Facility is withdrawing seawater;
5. To minimize impingement, the through-screen velocity at the onset of the surface water intake must not exceed 0.15 meters per second (0.5 feet per second) at all times;
6. The intake of seawater shall be reduced to the minimum volume necessary to maintain Facility operations;
7. In-plant recycling of waste streams shall be maximized before intaking additional seawater;
8. The Discharger shall cease intake of seawater except when intake of seawater is necessary to maintain Facility operations or to comply with this Order;
9. Heat treatment of the intake system is prohibited; and
10. Pump operations for intake of seawater with the new intake pumps shall minimize abrupt changes in flow velocity.

D. Discharge Specifications

The discharge of effluent from the Facility shall comply with the following:

1. Wastewater from the Facility must be discharged in a manner that provides sufficient initial dilution to comply with the limitations and specifications contained in sections IV and V of this Order and in compliance with the discharge prohibitions contained in section III of this Order.
2. Waste management systems that discharge to the Pacific Ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
3. Waste discharged to the Pacific Ocean must be essentially free of:
 - a. Material that is floatable or will become floatable upon discharge;
 - b. Settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life;

- c. Substances which will accumulate to toxic levels in marine waters, sediments, or biota;
- d. Substances that significantly decrease the natural light to benthic communities and other marine life; and
- e. Materials that result in aesthetically undesirable discoloration of the ocean surface.

E. Land Discharge Specifications – Not Applicable

F. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The receiving water limitations set forth below for ocean waters are based on water quality objectives contained in the Basin Plan and Ocean Plan and are a required part of this Order. The discharge of waste from the Facility shall not cause or contribute to a violation of these limitations in the Pacific Ocean. Compliance with limitation V.A.3.c for natural light, and V.A.4.g for Ocean Plan Table 1 Water Quality Objectives (excepting radioactivity) shall be determined outside the zone of initial dilution. Compliance with the salinity limitations shall be determined outside the brine mixing zone.

1. Salinity

The discharge shall not cause or contribute to an exceedance of 2.0 parts per thousand (ppt) above natural background salinity throughout the water column, measured at a point 200 meters from the end of the discharge channel.

Natural background salinity, as measured at a reference location that is representative of the salinity resulting from natural processes without human influence at the discharge location, will be used to evaluate compliance with the salinity receiving water limitation. The reference location shall be without human influence including wastewater outfalls and brine discharges. The reference location is the automated shore station at the end of Scripps Pier operated by Scripps Institution of Oceanography¹. Historical salinity data has been collected continuously at this location since February 10, 2005. If this reference location becomes unavailable in the future, the Discharger shall submit for the San Diego Water Board's review and acceptance a proposed alternative reference location representative of natural background salinity.

2. Bacterial Characteristics

- a. Within a zone bounded by the shoreline at mean sea level and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is farther from the shoreline, and in areas outside this zone used for water contact sports, as determined by the San Diego Water Board (i.e., waters designated as REC-1), but including all kelp beds, the following water quality objectives shall be maintained throughout the water column.
 - i. **Fecal Coliform.** A 30-day geometric mean (GM) of fecal coliform density not to exceed 200 per 100 milliliters (mL), calculated based on the five most recent samples from each site, and a single sample maximum (SSM) not to exceed 400 per 100 ml.

¹ More information in regard to the Scripps Pier shore station can be found at this website, current as of December 18, 2018:
<https://scripps.ucsd.edu/programs/shorestations/shore-stations-data/data-sio/>

- ii. **Enterococci.** A six-week rolling GM of enterococci not to exceed 30 colony forming units (cfu) per 100 milliliters (mL), calculated weekly, and a statistical threshold value (STV) of 100 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner.

- b. The zone of initial dilution of any wastewater outfall shall be excluded from designation as kelp beds for purposes of bacterial standards. Adventitious assemblages of kelp on waste discharge structures (e.g., outfall pipes and multiport diffusers) do not constitute kelp beds for purposes of bacterial standards.
- c. At all areas where shellfish may be harvested for human consumption, as determined by the San Diego Water Board, the median total coliform density shall not exceed 70 per 100 mL throughout the water column, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

3. Physical Characteristics

- a. Floating particulates and grease and oils shall not be visible.
- b. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.
- c. Natural light shall not be significantly reduced at any point outside the zone of initial dilution as a result of the discharge of waste.
- d. The rate of deposition of inert solids and the characteristics of inert solids in the ocean sediments shall not be changed such that benthic communities are degraded.
- e. Trash shall not be present in ocean waters, along shorelines, or in adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.
- f. The discharge of waste shall not cause the temperature of the receiving water to be altered in a manner that adversely impacts beneficial uses.

4. Chemical Characteristics

- a. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.
- b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- c. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.
- d. The concentration of substances set forth in Table 1 of the Ocean Plan, shall not be increased in marine sediments to levels that would degrade indigenous biota.
- e. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.
- f. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.
- g. Ocean Plan Table 1 water quality objectives apply to all discharges under this Order that are within the jurisdiction of the Ocean Plan. Unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations.

5. Biological Characteristics

- a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.
- b. The natural taste, odor, color of fish, shellfish, or other marine resources used for human consumption shall not be altered.
- c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

6. Radioactivity

- a. Discharge of radioactive waste shall not degrade marine life.
- b. The radioactivity in the receiving waters shall not exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, section 30253 of the California Code of Regulations (CCR). Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

B. Groundwater Limitations – Not Applicable

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.
2. The Facility shall be protected against a 100-year storm event as defined by the San Diego County Flood Control District (FCD).
3. The Facility shall be protected against erosion, overland runoff, and other impacts resulting from a 100-year, 24-hour storm event as defined by the San Diego FCD.
4. The Facility shall be protected to reduce infrastructure vulnerability to extreme wet weather events, flooding, storm surges, and projected sea level rise resulting from current and future impacts associated with climate change.
5. This Order expires on March 12, 2024, after which, the terms and conditions of this Order are automatically continued pending issuance of a new Order, provided that all requirements of U.S. EPA's NPDES regulations at title 40 of the Code of Federal Regulations (CFR) part 122.6 and the State's regulations at CCR title 23, section 2235.4 regarding the continuation of expired permits and waste discharge requirements are met.
6. The Water Code section 13142.5(b) determination described in attachment H of this Order does not expire and shall remain in effect unless the Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of all forms of marine life, consistent with the Ocean Plan definition of an expanded facility. Such a proposed change will require a new Water Code section 13142.5(b) determination for an expanded facility as required by the Ocean Plan chapter III.M.1.b.(3).
7. A full and complete copy of this Order shall be maintained at the Facility and shall be available to site personnel, San Diego Water Board, and the State Water Board at all times.

8. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this Facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

B. MRP Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

Notifications required to be provided under this Order to the San Diego Water Board shall be made to:

E-mail – SanDiego@waterboards.ca.gov

Telephone – (619) 516-1990

Facsimile – (619) 516-1994

C. Special Provisions

1. Reopener Provisions

- a. This Order may be reopened to modify provisions governing compliance with Water Code section 13142.5(b) and the Ocean Plan if the Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of all forms of marine life, consistent with the Ocean Plan definition of an expanded facility, beyond that which is approved in this Water Code section 13142.5(b) determination. This Order may be reopened at any time for modification of provisions governing compliance with the receiving water limitation for salinity as set forth in Ocean Plan section III.M.3.
- b. This Order may be reopened for modification of the MRP requirements and/or special studies requirements at the discretion of the San Diego Water Board. Such modification(s) may include, but is (are) not limited to, revisions (i) to implement recommendations from the Southern California Coastal Water Research Project (SCCWRP); (ii) to develop, refine, implement, and/or coordinate a regional monitoring program; (iii) to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9 2012-0069, *Resolution in Support of a Regional Monitoring Framework*; and/or (iv) to add provisions to require the Discharger to evaluate and provide information on cost and values of the MRP (Attachment E).
- c. This Order may be modified, revoked and reissued, or terminated for cause in accordance with the provisions of the Water Code and 40 CFR parts 122, 124, and 125 at any time prior to its expiration including, but not limited to, the following circumstances:
 - i. Violation of any terms or conditions of this Order. (Water Code section 13381(a))
 - ii. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts. (Water Code section 13381(b))
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. (Water Code section 13381(c))

- iv. The filing of a request by the Discharger for modifications, revocation and reissuance, or termination of this Order does not stay any condition of this Order. Notification by the Discharger of planned operational or Facility changes or anticipated noncompliance with this Order does not stay any condition of this Order. (40 CFR section 122.41(f))
- v. If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the CWA for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in this Order. (40 CFR section 122.44(b)(1))
- vi. Monitoring establishes that incorporation of an effluent limitation(s) is necessary because the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a performance goal(s) set forth in section IV.B, Table 6, of this Order or as otherwise described in Table 1 of the Ocean Plan. (40 CFR section 122.44(d)(1))
- vii. To revise effluent limitations or to modify for consistency, as a result of new standards or regulations, such as Ocean Plan or Basin Plan Amendments and/or other statewide Water Quality Control Plan amendments, or the adoption of a total maximum daily load (TMDL) for the receiving water. (40 CFR section 122.62(a)(3))

2. Special Studies, Technical Reports, and Additional Monitoring Requirements

a. Brine Discharge Technology Empirical Study

In accordance with chapter III.M.2.d.(2)(c) of the Ocean Plan, within 180 days following the adoption of this Order, the Discharger shall submit a work plan for a study and final report designed to assess the intake and mortality of all forms of marine life associated with the flow-augmentation choice of brine discharge technology, consistent with the requirements of Ocean Plan chapter III.M.2.d(2)(c)iv, *Considerations for Brine Discharge Technology*.

i. Brine Discharge Technology Empirical Study Work Plan (Work Plan)

- (a) The Work Plan shall establish baseline biological conditions at the discharge location and at a reference location. At its discretion, the San Diego Water Board may allow the use of existing data to meet this requirement.
- (b) The Work Plan shall provide for the collection of information, including biological surveys, to evaluate impacts caused by an augmented intake volume, intake and pump technology, water conveyance, waste brine mixing, and effluent discharge. The San Diego Water Board has the discretion to allow the Discharger to use existing data to meet portions of this requirement. Unless demonstrated otherwise, organisms entrained by the discharge technology are assumed to have a mortality of 100 percent.
- (c) The Work Plan shall provide for an analysis of the marine life impacts caused by brine discharged through multiport diffusers using the approach contained in the scientific report *Brine Diffusers and Shear Mortality*, Philip J.W. Roberts April 18, 2018, referenced as the Roberts Report in Finding 31 of Attachment H.1 of this Order. The Work Plan may also

provide for conducting the analysis using an additional approach, in addition to using the Roberts Report approach.

- (d) The Work Plan shall provide for a study period of at least 12 consecutive months following initial operation of the new intake structure unless otherwise specified by the San Diego Water Board.
- (e) The Work Plan shall include a schedule for completion of all activities and submission of a Brine Discharge Empirical Study Final Report, as described in section VI.C.2.a.iii below. The schedule must provide for submittal of the Final Report within six months of the completion of the empirical study.
- (f) The Discharger shall modify the Work Plan as requested by the San Diego Water Board.

ii. Brine Discharge Technology Empirical Study Work Plan Implementation

The Discharger shall implement the Work Plan no later than 60 days following startup of the new intake structure, unless otherwise directed by the San Diego Water Board. Before implementing the Work Plan, the Discharger shall:

- (a) Notify the San Diego Water Board of the intent to initiate the proposed actions included in the Work Plan; and
- (b) Comply with any conditions set by the San Diego Water Board.

iii. Brine Discharge Technology Empirical Study Final Report

Within six months of completing the Brine Discharge Technology Empirical Study in accordance with the Work Plan, the Discharger shall submit a Brine Discharge Technology Empirical Study Final Report (Final Report) to the San Diego Water Board. The Final Report shall include the analysis of projected marine life impacts caused by brine discharged through multiport diffusers using the Roberts Report and any other methodology described in the Work Plan. The Final Report shall also include an in-depth discussion, evaluation, interpretation, and tabulation of the data supporting the interpretations and conclusions reached.

If the Final Report shows that the flow augmentation choice for brine discharge technology results in more intake and mortality of marine life than if the Facility used wastewater dilution or multiport diffusers, then the Discharger must also submit with the Final Report a proposed schedule to either:

- (a) Cease using the alternative brine discharge technology and install and use wastewater dilution or multiport diffusers to discharge brine waste; *or*
- (b) Re-design the alternative brine discharge technology system to minimize intake and mortality of all forms of marine life to a level that is comparable with wastewater dilution if wastewater is available or multiport diffusers if wastewater is unavailable, subject to San Diego Water Board approval.

b. Receiving Water Violation Assessment

In the event of a violation of any receiving water limitation established within this Order, the San Diego Water Board may require the Discharger to perform a special study to investigate the nature and cause of the receiving water violation. The receiving water study shall identify measures needed to ensure future compliance with receiving water limitations. The Discharger shall submit the required study to

the San Diego Water Board within 90 days of receipt of the San Diego Water Board's notification to perform a Receiving Water Violation Study.

c. Marine Life Mitigation Plan

- i. No later than twelve months following the effective date of this Order, the Discharger shall prepare and submit an updated Marine Life Mitigation Plan to offset marine life and habitat impacts attributable to the construction and operation of the Facility after minimizing intake and mortality of all forms of marine life through best available site, design and technology. The updated Marine Life Mitigation Plan must establish the specific steps and methods necessary to provide 68.3 acres of mitigation to compensate for the marine life mortality impacts associated with the Facility's construction and operation. The updated Marine Life Mitigation Plan shall include the elements listed below:
 - (a) Project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances.
 - (b) The updated Marine Life Mitigation Plan shall provide for 68.3 acres of mitigation. The Discharger may account for the previously approved 66.4 mitigation acres as credit towards meeting the mitigation requirements in accordance with Finding 62 of Attachment H.1 of this Order.
 - (c) The updated Marine Life Mitigation Plan shall demonstrate that the additional mitigation acreage of 1.9 acres required to implement Finding 43 of Attachment H.1 of this Order that offsets impacts from permanent stand-alone operations can be achieved through the Otay River Estuary Restoration Project (ORERP). The ORERP was provided by Poseidon to fulfill the mitigation requirements imposed by the Coastal Commission's 2007 Coastal Development Permit and the San Diego Water Board's 2009 Determination. If the ORERP is insufficient to provide the additional mitigation acreage the report shall include a plan to achieve the additional required mitigation acreage.
 - (d) In accordance with Finding 43 of Attachment H.1 of this Order, the San Diego Water Board's biological performance standard of fish productivity (i.e the production of new fish biomass) of 1,715.5 kg/year for the ORERP may be removed because the intrusive monitoring required to assess the biological performance standard would likely be counter-productive to the goal for the mitigation. The Discharger shall propose an alternative method for evaluating mitigation performance through comparison with appropriate reference sites.
 - (e) A demonstration that the updated Marine Life Mitigation Plan provides for full mitigation for the operational lifetime of the Facility to account for the temporal loss of marine life and habitat productivity during the period extending from the commencement of Facility operations that result in marine life impacts until the mitigation project meets performance standards (see Finding 53 of Attachment H.1 of this Order).
 - (f) A timetable for implementation of the updated Marine Life Mitigation Plan.

- ii. The Discharger shall implement the updated Marine Life Mitigation Plan upon the plan approval by the San Diego Water Board in consultation with the State Water Board staff, the California Coastal Commission and with other agencies having authority to condition the approval of the project and require mitigation.

d. Climate Change Action Plan

Changing climate conditions may fundamentally alter the way desalination plants are designed and operated. Climate change research indicates the overarching driver of change is increased atmospheric carbon dioxide (CO₂) from human activity. The increased CO₂ emissions trigger changes to climatic patterns, which increase the intensity of sea level rise and coastal storm surges (Δ Sea Level), lead to more erratic rainfall and local weather patterns (Δ Weather Patterns), trigger a gradual warming of freshwater and ocean temperatures (Δ Water Temperature) and trigger changes to ocean water chemistry (Δ Water pH).

The Discharger is currently implementing an Energy Minimization and Green House Gas Reduction Plan (GHG Plan). In concordance with the current GHG Plan, the Discharger shall prepare and submit a Climate Change Action Plan (CCAP) within three years of the effective date of this Order. The CCAP shall identify the following:

- i. Projected regional impacts on the Facility and operations due to climate change if current trends continue.
- ii. Steps being taken or planned to address:
 - (a) Greenhouse gas emissions, directly and indirectly, attributable to the Facility operations and effluent discharge process;
 - (b) Flooding and sea level rise risks that may affect the operations including discharges at the Facility;
 - (c) Volatile rain period impacts (both dry and wet weather);
 - (d) Impacts on process design parameters due to changes caused by climate change; and
 - (e) Impacts on the Facility's operations and effluent water quality.
- iii. Potential need to adjust the conditions of this Order;
- iv. Financing needed to pay for planned actions;
- v. Conformity with plans and requirements by other agencies, including but not limited to the California Air Resources Board, the Air Pollution Control District, and the California Coastal Commission.
- vi. Schedules to update the CCAP as more information on climate change and its effects become available; and
- vii. Any other factors as appropriate.

3. Best Management Practices and Pollution Prevention

a. Best Management Practices (BMP) Plan

The Discharger shall continue to maintain and implement a Best Management Practices (BMP) Plan describing site-specific plans, procedures, and practices planned or implemented to prevent or minimize, the potential for release of significant amounts of toxic or hazardous pollutants to waters of the U.S. and/or

State through normal operations and ancillary activities, including, but not limited to standard operating procedures.

- i. The BMP Plan shall be developed and maintained consistent with the guidance contained in the U.S. EPA *Guidance Manual for Developing Best Management Practices* (EPA 833-B-93-004). The Discharger shall routinely review all Facility components or systems (including material storage areas, plant site-runoff, in-plant transfer, process and material handling areas, loading and unloading operations, spillage or leaks, and sludge and waste disposal areas) where pollutants are used, manufactured, stored or handled to evaluate the potential for the release of significant amounts of pollutants to waters of the U.S. and/or State. Whenever the potential for a significant release of hazardous wastes or pollutants to waters of the U.S. and/or State is determined to be present, the Discharger shall identify and implement BMPs to prevent or minimize the potential for releases. Where BMPs are inadequate or absent, appropriate BMPs shall be established and implemented.
- ii. The Discharger shall review the BMP Plan on an annual basis, and update the plan whenever changes at the Facility increase the potential for the discharge of toxic or hazardous pollutants to waters of the U.S. and/or State.

b. Pollutant Minimization Program

- i. The Discharger must develop and conduct a Pollutant Minimization Program, in accordance with the requirements of chapter III.C.9 of the Ocean Plan, if all of the following conditions are true:
 - (a) The calculated effluent limitation is less than the reported Minimum Level (ML);
 - (b) The concentration of the pollutant is reported as Detected but Not Quantified (DNQ); and
 - (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.
- ii. Alternatively, the Discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:
 - (a) The calculated effluent limitation is less than the Method Detection Limit (MDL);
 - (b) The concentration of the pollutant is reported as Not Detected (ND); and
 - (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.
- iii. The San Diego Water Board may consider cost-effectiveness when establishing the requirements of a Pollutant Minimization Program. The program shall include actions and submittals acceptable to the San Diego Water Board including, but not limited to, the following:
 - (a) An annual review and semi-annual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other bio-uptake sampling;
 - (b) Quarterly monitoring for the reportable pollutant in the influent;

- (c) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant in the effluent at or below the calculated effluent limitation;
- (d) Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and,
- (e) An annual status report sent to the San Diego Water Board including:
 - (1) All Pollutant Minimization Program monitoring results for the previous year;
 - (2) A list of potential sources of the reportable pollutant;
 - (3) A summary of all action taken in accordance with the control strategy; and
 - (4) A description of actions to be taken in the following year.
- 4. **Construction, Operation and Maintenance Specifications – Not Applicable**
- 5. **Special Provisions for Publicly Owned Treatment Works – Not Applicable**
- 6. **Other Special Provisions – Not Applicable**
- 7. **Compliance Schedule for Construction of the New Intake Structure**
 - a. The Discharger shall comply with the following schedule to construct a new source water intake structure in compliance with the Ocean Plan, Water Code section 13142.5(b), and the requirements of this Order.

Table 7. Compliance Schedule for Construction of the New Intake Structure

Task	Compliance Date
1. Submit to the San Diego Water Board a Construction Work Plan outlining in detail the steps and schedule with specific milestones to construct the new intake structure.	September 30, 2019
2. Complete construction and begin operation of the new dilution water intake pumps.	April 30, 2020
3. Complete 30% design of the new intake structure in conformance with the Water Code section 13142.5(b) determination in Attachment H of this Order and select contractor for construction of new intake structure.	June 30, 2022
4. Secure necessary permits to construct the new intake system. This may include but is not limited to: California Coastal Commission Coastal Development Permit Amendment, and Army Corps of Engineers CWA section 404 Permit, and San Diego Water Board CWA section 401 Water Quality Certification. Additional permits or approvals may be necessary that are not listed here.	December 31, 2022
5. Begin construction of the new intake structure.	January 15, 2023
6. Complete Construction and begin operation of the new intake structure.	September 1, 2023
7. Achieve full compliance with the Ocean Plan, Water Code section 13142.5(b) determination for the Facility, and Intake Specifications in section IV.C of this Order.	December 11, 2023

b. Compliance Schedule Reporting Requirements

The Discharger shall prepare and submit the following to the San Diego Water Board within 30 days after each compliance date specified in Table 7 of this Order:

- i. A written submission detailing compliance or noncompliance with the specific schedule date and task;
- ii. If noncompliance is being reported, the written submission shall contain a description of the noncompliance and its cause, steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance; and the anticipated time the noncompliance is expected to continue. The Discharger shall also notify the San Diego Water Board within 30 days by letter when it returns to compliance with the time schedule.

c. Interim Operations Requirements

Until the new intake structure is constructed and operational, the Discharger is required to implement the following measures to minimize the intake and mortality of all forms of marine life:

- i. Surface water intakes must be screened using the existing intake screens, and the screens must be functional while the Facility is withdrawing seawater;
- ii. The intake of seawater must not exceed a flowrate of 330 MGD with the existing intake pumps; and 299 MGD with the new intake pumps.
- iii. Axial-flow, low-turbulence pumps shall be constructed and made operational as soon as feasible but no later than the date specified in Table 7, Task 2;
- iv. The intake of seawater shall be reduced to the minimum volume necessary to maintain Facility operations and to comply with this Order, subject to the operational limitations of the existing pumps prior to the new intake pumps being operational;
- v. To the maximum extent practicable, in-plant recycling of waste streams shall be maximized before intaking additional seawater;
- vi. The Discharger shall cease intake of seawater except when intake of seawater is necessary to maintain Facility operations or to comply with this Order;
- vii. Heat treatment of the intake system is prohibited; and
- viii. Pump operations shall minimize abrupt changes in flow velocity, subject to the operational limitations of the existing pumps prior to the new intake pumps being operational.

8. Certification Report for New Intake Structure

- a. Prior to beginning construction of the new intake structure and no later than July 30, 2022, the Discharger shall submit a Certification Report for the new intake structure prepared by the design engineer. The Certification Report shall:
 - i. Identify the design capacity of the intake structure and screening;
 - ii. Certify the adequacy of key components of the intake structure;

- iii. Contain an analysis, based on acceptable engineering practices, for the design of the intake structure to ensure compliance with the requirements of the Ocean Plan, Water Code section 13142.5(b), Intake Specifications in section IV.C. of this Order and any other applicable requirements of this Order; and
 - iv. Include the supporting information and rationale for the certification include calculations, reference citations, and analysis documentation.
- b. The Certification Report must be prepared by a California licensed professional engineer, competent and proficient in the field pertinent to the report and qualified to prepare such a report. A statement of qualification of the responsible lead professional shall be included in the report. The signature and engineering license number of the engineer preparing the certification report shall be affixed to the report.
- c. The Discharger shall not initiate operation of the new intake structure until:
- i. The Certification Report is accepted by the San Diego Water Board;
 - ii. The San Diego Water Board has received written notification that the intake structure is completely constructed and operable in accordance with the requirements of this Order; and
 - iii. The San Diego Water Board has provided the Discharger with written authorization to initiate operation of the intake structure.

9. Certification Report for New Intake Pumps

- a. The Discharger shall submit a certification report for the new intake dilution pumps no later than December 31, 2019 demonstrating that the pumps comply with the criteria described in chapter III.M.2.d.(2)(d)(ii) of the Ocean Plan. The Certification Report shall:
- i. Identify the make, design capacity, design criteria, and other pertinent specifications for the pumps;
 - ii. Contain an analysis based on acceptable engineering practices, demonstrating that the pumps are low turbulence intakes (e.g., screw centrifugal pumps or axial flow pumps), that convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors (i.e. impeller blade size and configuration, revolution speed, marine life residence time) that could cause intake and mortality of all forms of marine life; and
 - iii. Include the supporting information and rationale for the certification including calculations, reference citations, and analysis documentation.
- b. The Certification Report must be prepared by a California licensed professional engineer, competent and proficient in the field pertinent to the report and qualified to prepare the report. A statement of qualification of the responsible lead professional shall be included in the report. The signature and engineering license number of the engineer preparing the certification report shall be affixed to the report.
- c. The Discharger shall not initiate operation of the pumps until:
- i. The Certification Report is accepted by the San Diego Water Board;
 - ii. The San Diego Water Board has received written notification that the pumps are installed and operable; and

- iii. The San Diego Water Board has provided the Discharger with written authorization to initiate operation of the pumps.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. Compliance with Average Monthly Effluent Limitation (AMEL)

If the average of daily discharge monitoring results over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged, and the Discharger is out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of noncompliance in a 31-day month). The average of daily discharge monitoring results over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger is out of compliance for that calendar month. For any one calendar month during which no sample is taken, no compliance determination in regard to the AMEL can be made for that calendar month.

B. Compliance with Average Weekly Effluent Limitation (AWEL)

If the average of daily discharge monitoring results over a calendar week (Sunday through Saturday) exceeds the AWEL for a given parameter, an alleged violation will be flagged and the Discharger is out of compliance for each day of that week for that parameter, resulting in seven days of noncompliance. The average of daily discharge monitoring results over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Discharger is out of compliance for that calendar week. For any one calendar week during which no sample is taken, no compliance determination in regards to the AWEL can be made for that calendar week.

C. Compliance with Maximum Daily Effluent Limitation (MDEL)

The MDEL shall apply to flow weighted 24-hour composite samples, or grab samples, as specified in the MRP (Attachment E). If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the Discharger is out of compliance for that parameter for that one day only within the reporting period. For any one day during which no sample is taken, no compliance determination in regards to the MDEL can be made for that day.

D. Compliance with Instantaneous Minimum Effluent Limitation

The instantaneous minimum effluent limitation applies to grab sample analytical results. If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, an alleged violation will be flagged and the Discharger is out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within the same calendar day that are both lower than the instantaneous minimum effluent limitation results in two instances of noncompliance with the instantaneous minimum effluent limitation).

E. Compliance with Instantaneous Maximum Effluent Limitation

The instantaneous maximum effluent limitation applies to grab sample determinations. If the analytical result of a single grab sample is higher than the instantaneous maximum effluent

limitation for a parameter, an alleged violation will be flagged and the Discharger is out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within the same calendar day that both exceed the instantaneous maximum effluent limitation results in two instances of noncompliance with the instantaneous maximum effluent limitation).

F. Compliance with 6-Month Median Effluent Limitation

If the median monitoring result of daily discharges over any 180-day period exceeds the 6-month median effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger is out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance occurs after the next sample is taken. If only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the 6-month median, the Discharger is out of compliance for the 180-day period. For any 180-day period during which no sample is taken, no compliance determination can be made for the 6-month median limitation.

G. Compliance with 30-Day Average Effluent Limitation

If the arithmetic mean of daily discharges over any 30 consecutive day period exceeds the 30-day average effluent limitation, an alleged violation will be flagged and the Discharger is out of compliance for each day of that 30-day period for that parameter. The next assessment of compliance will occur after the next sample is taken. If only a single sample is taken during a given 30-day period and the analytical result for that sample exceeds the 30-day average effluent limitation, the Discharger is out of compliance for the 30-day period. For any 30-day period during which no sample is taken, no compliance determination can be made for the 30-day average effluent limitation.

H. Mass and Concentration Limitations

Compliance with mass and concentration effluent limitations for the same parameter shall be determined separately with their respective limitations. When the concentration of a constituent in an effluent sample is determined to be ND or DNQ, the corresponding MER determined from that sample concentration shall also be reported as "ND" or "DNQ".

I. Ocean Plan Provisions for Table 1 Parameters

Sufficient sampling and analysis is required to determine compliance with the effluent limitations.

1. Compliance with Single-constituent Effluent Limitations

The Discharger is out of compliance with an effluent limitation or discharge specification if the monitoring result of the constituent in the sample is greater than the effluent limitation or discharge specification and is greater than or equal to the Minimum Level (ML).

2. Compliance with Effluent Limitations Expressed as a Sum of Several Parameters

The Discharger is out of compliance with an effluent limitation that applies to the sum of a group of chemicals (e.g. polychlorinated biphenyls) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

3. Multiple Sample Data Reduction

The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean,

geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported ML). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant is the median (middle) value of the multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median is the lower of the two middle values.

4. Mass Emission Rate (MER)

The MER, in pounds per day, shall be obtained from the following calculation for any calendar day:

$$\text{MER (lbs/day)} = 8.34 \times Q \times C$$

Q is the flow rate in million gallons per day and C is the constituent concentration in mg/L, respectively, and 8.34 is a conversion factor (L x lbs / mg x gallons of water). If a composite sample is taken, then C is the concentration measured in the composite sample and Q is the average flow rate during the period which the samples are composited.

J. Bacterial Standards and Analysis

1. The geometric mean used for determining compliance with bacteriological standards is calculated with the following equation:

$$\text{Geometric Mean} = (C_1 \times C_2 \times \dots \times C_n)/n$$

Where n is the number of days that samples were collected during the period and C is the density of bacteria (colony forming units (CFU)/100 mL) found on each day of sampling.

2. For all bacterial analyses, sample dilutions must be performed so the range of values extends from 2 to 16,000 CFU. The detection methods used for each analysis will be reported with the results of the analysis. Detection methods used for coliforms (total and fecal) will be those listed in 40 CFR part 136 or any improved method determined by the San Diego Water Board (and approved by U.S. EPA) to be appropriate. Detection methods used for enterococcus shall be those presented in U.S. EPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water by Membrane Filter Procedure*, listed under 40 CFR part 136, and any other method approved by the San Diego Water Board.

K. Single Operational Upset (SOU)

A SOU that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation, and limits the Discharger's liability in accordance with the following conditions:

1. A SOU is broadly defined as a single unusual event that temporarily disrupts the usually satisfactory operation of a system in such a way that it results in violations of multiple pollutant parameters;
2. The Discharger may assert SOU to limit liability only for those violations which the Discharger submitted notice of the upset as required in section I.H of the Standard Provisions (Attachment D);
3. For purposes outside of Water Code sections 13385(h) and (i), determination of compliance and civil liability (including any more specific definition of SOU), the requirements for the Discharger to assert the SOU limitation of liability, and the manner

of counting violations, shall be in accordance with the U.S. EPA Memorandum *Issuance of Guidance Interpreting Single Operational Upset* (September 27, 1989); and

4. For purposes of Water Code sections 13385(h) and (i), determination of compliance and civil liability (including any more specific definition of a SOU), the requirements for the Discharger to assert the SOU limitation of liability, and the manner of counting violations shall be in accordance with Water Code section 13385(f)(2).

L. Chronic Toxicity

The discharge is subject to determination of "Pass" or "Fail" from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (U.S. EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is:

Mean discharge "in-stream" waste concentration (IWC) response $\leq 0.75 \times$ Mean control response.

A test result that rejects this null hypothesis is reported as "Pass". A test result that does not reject this null hypothesis is reported as "Fail." This is a t-test (formally known as Student's t-Test), a statistical analysis comparing two sets of replicate observations - in the case of whole effluent toxicity (WET) tests, only two test concentrations (i.e., a control and IWC). In conformance with requirements contained in 40 CFR part 136, a series of five dilutions are required to be tested, while only two of the test concentrations are compared. The results from the additional dilutions tested may be used for informational purposes. The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC or receiving water concentration differs from the control (the test result is "Pass" or "Fail")). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

The MDEL for chronic toxicity is exceeded and a violation will be flagged when a chronic toxicity test, analyzed using the TST statistical approach, results in "Fail."

The MDEL for chronic toxicity is set at the IWC for the discharge (17.4% effluent¹) and expressed in terms of the TST statistical approach ("Pass" or "Fail"). All monitoring for the chronic toxicity MDEL shall be reported using the 17.4% effluent concentration and negative control, expressed in terms of the TST. The TST hypothesis (Ho) (see above) is statistically analyzed using the IWC and a negative control. Effluent toxicity tests shall be run using *Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine Estuarine Organisms* (EPA/600/R-95/136, 1995).

The San Diego Water Board's review of reported toxicity test results includes review of concentration-response patterns as appropriate (see section IV.C.6 of the Fact Sheet (Attachment F).) As described in the laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Board dated August 07, 2014, and from USEPA dated December 24, 2013, the Percent Minimum Significant Difference (PMSD) criteria only apply to compliance reporting for the No Observed Effect Concentration (NOEC) and the sublethal statistical endpoints of the NOEC, and therefore are not used to interpret TST results. Standard operating procedures used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent (and receiving water) toxicity test measurement results from the TST statistical approach, including those that incorporate a

¹IWC = 1/minimum initial dilution factor (Dm) = 1/5.75 = 0.174 = 17.4%. Because chronic toxicity is sampled at M-002 following dilution from the flow-augmentation water, the only remaining dilution available is from the ocean. Therefore, the IWC for chronic toxicity is calculated only using dilution from the ocean, 5.75 parts water (i.e. dilution ratio of 1:4.75) and not the total dilution of 22.83 parts water, (i.e. dilution ratio of 1:21.83). For further information regarding the calculation of the dilution factor, please see section II.B. of the Fact Sheet.

consideration of concentration-response patterns, must be submitted to the San Diego Water Board (40 CFR section 122.41(h)). The San Diego Water Board will make a final determination as to whether a toxicity test result is valid, and may consult with the Discharger, U.S. EPA, the State Water Board's Quality Assurance (QA) Officer, or the State Water Board's Environmental Laboratory Accreditation Program (ELAP) as needed. The Board may consider results of any Toxicity Reduction Evaluation (TRE) / Toxicity Identification Evaluation (TIE) studies when considering an enforcement action.

ATTACHMENT A – ABBREVIATIONS AND GLOSSARY

Part 1. – Abbreviations

Abbreviation	Definition
AMEL	Average Monthly Effluent Limitation
APF	Area Production Foregone
ASBS	Areas of Special Biological Significance
AWEL	Average Weekly Effluent Limitation
Basin Plan	Water Quality Control Plan for the San Diego Basin
BMP	Best Management Practices
BMZ	Brine Mixing Zone
CCR	California Code of Regulations
CDP	Carlsbad Desalination Plant
CFR	Code of Federal Regulations
CFU	Colony Forming Units
CTD	Conductivity, Temperature, and Depth
CWA	Clean Water Act
DDT	Dichlorodiphenyltrichloroethane
DDW	Division of Drinking Water
Discharger	Poseidon Resources (Channelside) LP
Dm	Initial Dilution
DMR-QA	Discharge Monitoring Report Quality Assurance
DNQ	Detected, but Not Quantified
ELAP	Environmental Laboratory Accreditation Program
ETM	Empirical Transport Model
FCD	San Diego County Flood Control District
HCH	Hexachlorocyclohexane
Ho	Test Hypothesis for the Test of Significant Toxicity
IMP	Impingement Monitoring Program
IWC	Instream Waste Concentration
kg	Kilograms
lbs/day	Pounds per Day
µg	Microgram
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
ml/L	Milliliters per Liter
MDEL	Maximum Daily Effluent Limitation
MDL	Method Detection Limit
MEC	Maximum Effluent Concentration
MER	Mass Emission Rate
MGD	Million Gallons per Day
ML	Minimum Level
MLMP	Marine Life Mitigation Plan
MPN	Most Probable Number
MRP	Monitoring and Reporting Program
MSL	Mean Sea Level

Abbreviation	Definition
ND	Not Detected
NOEC	No Observed Effect Concentration
NR	Not Reported
NTU	Nephelometric Turbidity Unit
NPDES	National Pollutant Discharge Elimination System
Ocean Plan	California Ocean Plan, Water Quality Control Plan Ocean Waters Of California
ORERP	Otay River Estuary Restoration Project
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PMP	Productivity Monitoring Program
PMSD	Percent Minimum Significant Difference
ppt	Parts per thousand
RL	Reporting Level
RPA	Reasonable Potential Analysis
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SAP	Scientific Advisory Panel
SCCWRP	Southern California Coastal Waters Research Project
SMR	Self-Monitoring Report
SOU	Single Operational Upset
State Water Board	State Water Resources Control Board
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
TST	Test of Significant Toxicity
U.S. EPA	United States Environmental Protection Agency
U.S.	United States
U.S.C.	United States Code
Water Code	California Water Code
WDR	Waste Discharge Requirements
WET	Whole Effluent Toxicity
ZID	Zone of Initial Dilution

Part 2. – Glossary of Common Terms

All forms of marine life

Includes all life stages of all marine species.

Area Production Foregone (APF)

Also known as habitat production foregone, is an estimate of the area that is required to produce (replace) the same amount of larvae or propagules that are removed via entrainment at a desalination facilities intake(s). APF is calculated by multiplying the proportional mortality by the source water body, which are both determined using an empirical transport model. Also known as habitat production foregone.

Areas of Special Biological Significance (ASBS)

Those areas designated by the State Water Resources Control Board (State Water Board) as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. All ASBS are also classified as a subset of State Water Quality Protected Areas.

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Brine

The byproduct of desalinated water having a salinity concentration greater than a desalination facility's intake source water.

Brine mixing zone (BMZ)

The area where salinity may exceed 2.0 parts per thousand above natural background salinity, or the concentration of salinity approved as part of an alternative receiving water limitation. The standard brine mixing zone shall not exceed 100 meters (328 feet) laterally from the point(s) of discharge and throughout the water column. An alternative brine mixing zone, if approved as described in the Ocean Plan chapter III.M.3.d, shall not exceed 200 meters (656 feet) laterally from the point(s) of discharge and throughout the water column. The brine mixing zone is an allocated impact zone where there may be toxic effects on marine life due to elevated salinity.

Bypass

The intentional diversion of waste streams from any portion of a treatment facility. (40 CFR Part 122.41(m)(1)(i).)

Chlordane

The sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

Chronic toxicity

Chronic toxicity is the measure of the sub-lethal effects of a discharge or ambient water sample (e.g. reduced growth or reproduction.) Certain chronic toxicity tests include an additional measurement of lethality.

Chlorinated phenolic compounds

The sum of 4-chloro-3-methylphenol, 2-chlorophenol, pentachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol.

Daily discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the Order), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Degrade

Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected or are not the only ones affected.

Desalination facility

An industrial facility that processes water to remove salts and other components from the source water to produce water that is less saline than the source water.

Detected, but Not Quantified (DNQ)

Sample results that are less than the reported Minimum Level, but greater than or equal to the laboratory's Method Detection Limit. Sample results reported as DNQ are estimated concentrations.

Dichlorobenzenes

The sum of 1,2- and 1,3-dichlorobenzene.

Dichlorodiphenyltrichloroethane (DDT)

The sum of 4,4' DDT, 2,4' DDT, 4,4' dichlorodiphenyldichloroethylene (DDE), 2,4' DDE, 4,4' dichlorodiphenyldichloroethane (DDD), and 2,4' DDD.

Downstream ocean waters

Waters downstream with respect to ocean currents.

Dredged material

Any material excavated or dredged from the navigable waters of the U.S., including material otherwise referred to as “spoil.”

Eelgrass beds

Aggregations of the aquatic plant species of the genus *Zostera*.

Empirical Transport Model (ETM)

A methodology for determining the spatial area known as the source water body that contains the source water population, which are the organisms that are at risk of entrainment as determined by factors that may include but are not limited to biological, hydrodynamic, and oceanographic data. ETM can also be used to estimate proportional mortality, P_m . Guidance for performing an ETM is available in *Appendix E of the Staff Report for Amendment to the Water Quality Control Plan for Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, And the Incorporation of Other Non-substantive Changes*.

End of the discharge channel

Average seaward projection at mean sea level (MSL) of the two rock jetties that form the discharge channel.

Endosulfan

The sum of endosulfan-alpha and -beta and endosulfan sulfate.

Estuaries and coastal lagoons

Estuaries and coastal lagoons are waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters.

ETM/APF Approach or Analysis

For guidance on how to perform an ETM/APF analysis please see *Appendix E of the Staff Report for Amendment to the Water Quality Control Plan for Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Non-substantive Changes*.

Facility

Claude “Bud” Lewis Carlsbad Desalination Plant.

Feasible

For the implementation of Ocean Plan section III.M, feasible shall mean capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Flow augmentation

A type of in-plant dilution that occurs when a desalination facility withdraws additional source water for the specific purpose of diluting brine prior to discharge.

Geometric Mean (GM)

Geometric Mean is a type of mean or average that indicates the central tendency or typical value of a set of numbers by using the product of their values (as opposed to the arithmetic mean which uses their sum). The geometric mean is defined as the nth root of the product of n numbers. The formula is expressed as: $GM = \sqrt[n]{(x_1)(x_2)(x_3) \dots (x_n)}$, where x is the sample value and n is the number of samples taken.

Halomethanes

The sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

Hexachlorocyclohexane (HCH)

The sum of the alpha, beta, gamma (lindane) and delta isomers of HCH.

Indicator bacteria

Includes total coliform bacteria, fecal coliform bacteria (or E. coli), and/or Enterococcus bacteria.

In-kind mitigation

When the habitat or species lost is the same as what is replaced through mitigation.

Initial Dilution (Dm)

The process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the San Diego Water Board, whichever results in the lower estimate for initial dilution.

Instantaneous maximum effluent limitation

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous minimum effluent limitation

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Interference

A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- (1) Inhibits or disrupts the Facility, its treatment processes or operations, or its sludge processes, use or disposal; and

(2) Therefore is a cause of a violation of any requirement of the Facility's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Interim stand-alone operations

The Encina Power Station terminated power generation operations on December 11, 2018. At that time, the Facility initiated interim stand-alone operations utilizing the existing Encina Power Station's intake structure, screens, and existing pumps to provide the volume of seawater needed to produce potable water, and to provide dilution water for the reverse osmosis concentrate and filter backwash from the Facility prior to being discharged to the Pacific Ocean. During interim stand-alone operations the existing Encina Power Station pumps will be replaced by new intake pumps. Interim stand-alone operations continue until the permanent intake structure is constructed and operational.

Kelp beds

Kelp beds are aggregations of marine algae of the order Laminariales, including species in the genera *Macrocystis*, *Nereocystis*, and *Pelagophycus*. Kelp beds include the total foliage canopy throughout the water column.

Mariculture

The culture of plants and animals in marine waters independent of any pollution source.

Mitigation

Mitigation is the replacement of all forms of marine life or habitat that is lost due to the construction and operation of a desalination facility after minimizing intake and mortality of all forms of marine life through best available site, design and technology.

Material

(a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of the Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, "material" means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, "Dredged Material".

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant.

Method Detection Limit (MDL)

The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR part 136, Attachment B.

Minimum Level (ML)

The concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Multiport diffusers

Linear structures consisting of spaced ports or nozzles that are installed on submerged marine outfalls and enable rapid mixing, dispersal, and dilution of brine within a relatively small area.

Natural background salinity

The salinity at a location that results from naturally occurring processes and is without apparent human influence. For purposes of determining natural background salinity, the San Diego Water Board may approve the use of:

- 1) The mean monthly natural background salinity shall be determined by averaging 20 years of historical salinity data in the proximity of the proposed discharge location and at the depth of the proposed discharge when feasible. When historical data are not available, natural background salinity shall be determined by measuring salinity at depth of the proposed discharge for 3 years, on a weekly basis prior to a desalination facility discharging brine, and the mean monthly natural salinity shall be used to determine natural background salinity; or
- 2) The actual salinity at a reference location, or reference locations, that is representative of natural background salinity at the discharge location. The reference locations shall be without apparent human influence, including wastewater outfalls and brine discharges.

Either method to establish natural background salinity may be used for the purpose of determining compliance with the receiving water limitation and the effluent limitation for salinity. If a reference location(s) is used for compliance monitoring, the permit should specify that historical data shall be used if reference location data becomes unavailable. An owner or operator shall submit to the regional water board all necessary information to establish natural background salinity.

Natural light

Reduction of natural light may be determined by the San Diego Water Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the San Diego Water Board.

Not Detected (ND)

Those sample results less than the laboratory's MDL.

Ocean waters

The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

Out-of-kind mitigation

When the habitat or species lost is different than what is replaced through mitigation.

Pass through

A discharge which exits the Facility into waters of the U.S. in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the Facility's NPDES permit (including an increase in the magnitude or duration of a violation).

Phenolic Compounds (non-chlorinated)

The sum of 2,4-dimethylphenol, 4,6-Dinitro-2-methylphenol, 2,3-dinitrophenol, 2-methylphenol, 4-methylphenol, 2-nitrophenol, 4-nitrophenol, and phenol.

Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, in order to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The San Diego Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to California Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements in Ocean Plan section III.C.9.

Polynuclear Aromatic Hydrocarbons (PAHs)

The sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

Polychlorinated Biphenyls (PCBs)

The sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

Propagules

Structures that are capable of propagating an organism to the next stage in its life cycle via dispersal. Dispersal is the movement of individuals from their birth site to their reproductive grounds.

Proportional mortality, P_m

The percentage of larval organisms or propagules in the source water body that is expected to be entrained at a desalination facility's intake. It is assumed that all entrained larvae or propagules die as a result of entrainment.

Rehabilitation

Repair, renewal, and replacement of components to return the system to near-original condition and performance

Reported Minimum Level (also known as the Reporting Level or RL)

The reported minimum level (also known as the reporting level or RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the San Diego Water Board either from Appendix II of the Ocean Plan in accordance with section III.C.5.a of the Ocean Plan, or established in accordance with section III.C.5.b of the Ocean Plan. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, the additional factor must be applied to the ML in the computation of the reported ML.

Salinity

A measure of the dissolved salts in a volume of water. Salinity shall be measured using a standard method approved by the San Diego Water Board (e.g. Standard Method 2520 B, U.S. EPA Method 120.1, U.S. EPA Method 160.1) and reported in parts per thousand. For historical salinity data not recorded in parts per thousand, the San Diego Water Board may accept converted data at their discretion.

Seawater

Salt water that is in or from the ocean. For implementation of section III.M of the Ocean Plan, seawater includes tidally influenced waters in coastal estuaries and coastal lagoons and underground salt water beneath the seafloor, beach, or other contiguous land with hydrologic connectivity to the ocean.

Sensitive habitats

Include kelp beds, rocky substrate, surfgrass beds, eelgrass beds, oyster beds, spawning grounds for State or federally managed species, market squid nurseries, or other habitats in need of special protection as determined by the San Diego Water Board.

Severe property damage

Substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR section 122.41(m)(1)(ii))

Shellfish

Organisms identified by the California Department of Health Services as shellfish for public health purposes (i.e., mussels, clams, and oysters).

Significant difference

A statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

Single Sample Maximum (SSM)

Single Sample Maximum is a maximum value not to be exceeded in any single sample.

Six-month median effluent limitation

The highest allowable moving median of all daily discharges for any 180-day period.